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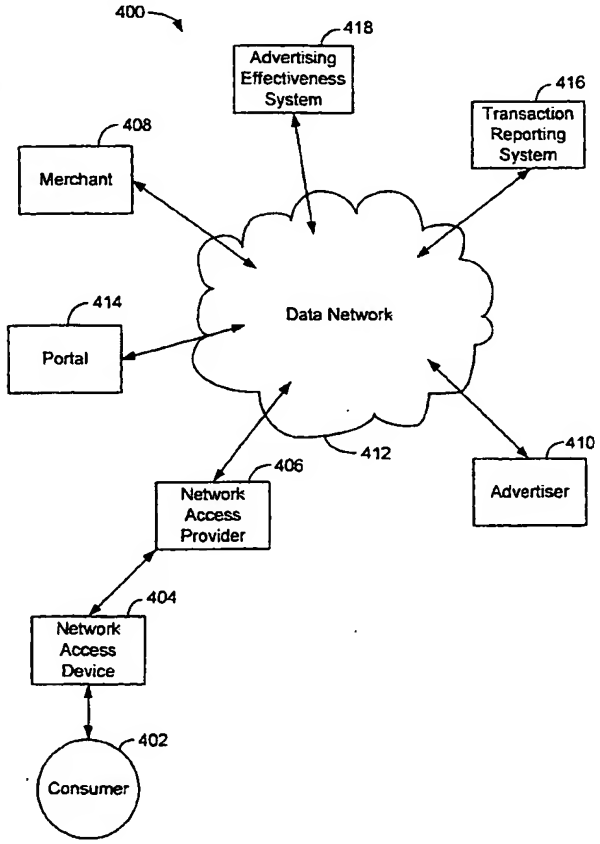

(57) Abstract: A system for measuring the effectiveness of on-line advertising (418). The system includes a method for measuring advertising effectiveness of a merchant's (408) advertisement presented on a data network that comprises steps of identifying a consumer that accesses the data network, presenting the advertisement to the consumer via the data network, recording the consumer's network activity in an activity database, wherein the consumer's network activity in response to the advertisement is recorded in the activity database, and matching the activity database with purchase transaction records of the merchant to determine an effectiveness parameter of the advertisement.

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METHOD AND APPARATUS FOR MEASURING EFFECTIVENESS OF ON-LINE ADVERTISING

CROSS-REFERENCES TO RELATED APPLICATIONS

This application claims priority from a co-pending U.S. Provisional Patent Application No. 60/166,451 entitled USER PURCHASE VERIFICATION OF INTERNET ADVERTISING EFFECTIVENESS filed on November 19, 1999, the disclosure of which is incorporated herein in its entirety for all purposes. This application is related to U.S. Patent Application No. 09/637422 entitled TRANSACTION BASED AWARD PROGRAM filed on August 11, 2000, the disclosure of which is incorporated herein in its entirety for all purposes.

FIELD OF THE INVENTION

This invention relates generally to advertising, and more particularly, to a system for measuring effectiveness of advertising on a data network.

BACKGROUND OF THE INVENTION

Advertising products or services has always been an essential part of conducting business. Various media have been employed for advertising including television, radio, print, and billboards. Recently, the use of Internet advertising and marketing has experienced astronomical growth.

However, it has always been difficult to accurately determine the effectiveness of any advertising since there has been no feedback or link between actual purchases of a company's goods or services and an earlier advertisement run by the company. At best, a general change in the sales of the advertised product or services can be determined. In a broad sense, advertising directed to the general public is probably the least effective since such advertising will be viewed or seen by many individuals who have absolutely no interest in the advertised product or service. This is problematic since the cost of such advertising, regardless of the media, is typically based on the estimated number of viewers of the advertising.

Developments in advertising have led to the use of targeted advertising where ads for a specific product or service are more closely directed to individuals who might be interested in purchasing such products or services. For example, advertisements in a

computer magazine would be more effective if they were for computer related products or services. Less effective advertisements in a computer magazine would be advertisements of unrelated products, such as baby products.

Similar advertising principles have also been employed in online networks, such as the Internet, through the use of banner advertisements that appear in various web browsers, such as those produced by AOL, Netscape, Microsoft, as well as the myriad of other consumer portals.

When using the Internet, a user generally accesses the Internet through a web browser operating on a computer or other Internet interface device. The web browser generates the hypertext transfer protocol (HTTP) necessary to communicate with a requested website on the Internet. Thus, a user can access the web site of any company on the Internet by inputting an Internet domain name of the desired company. The web browser sends the necessary hypertext transfer protocol messages to the user's service provider which in turn, looks up the domain name using a Domain Name Service (DNS) server, or similar capability. The web pages or information maintained by a Web server having the addressed domain name are transmitted back to the user's computer for display. Such information frequently includes banner advertisements about new products, services, etc.

In addition, banner advertisements for one company's products or services might be inserted into the web pages of other company's or content provider's. The user has the capability to simply read the advertisement or to click on or through the advertising banner to access the web page associated with advertisement, thereby obtaining more information about the advertised product or service.

It is known that Internet communications frequently use electronic identifiers (IDs), referred to as "cookies", which can uniquely identify an individual user and/or associated information about the user. This information has been employed in several methods to direct to a particular user one or more advertising banners that are related to that user's preferences, thereby increasing the probability that the user would purchase one of the advertised products or services.

However, even this form of targeted advertising lacks verification of effectiveness, since there is no sure indication that a particular Internet user, after viewing or clicking through an advertising banner, actually purchases a product from the advertiser. The one exception being in the case of a concurrent purchase where the user, after accessing the advertiser's web page, actually places an electronic order for a product or service from the web page.

Absent a concurrent electronic purchase, Internet advertisers still lack any effectiveness verification of their advertising, since the user could view the Internet advertisement and then go to the nearest retail outlet to purchase the advertised product. Thus, the advertiser may never learn if the user saw the Internet advertisement prior to the purchase or whether the purchase was a direct result of the user seeing the advertisement.

A different method of tracking advertising over networks is disclosed in US Patent No. 5,937,390. In this method, when a user accesses an on-line advertisement, a toll-free telephone number of the advertiser's store is sent to the user's terminal. When the user calls this toll-free telephone number, a control system connects the call from the user to the store and at the same time records information on the access of the toll-free telephone number. This information is provided to the service provider who can provide an analysis of the hit rate and thereby determine the effectiveness of the particular advertisement.

However, while this method provides a measure of advertising effectiveness, since there is a direct link between a user who views an Internet advertising and a subsequent step of calling a toll-free number, there still remains a void involving any purchases by the user directly at a retail store. This void occurs in cases where the user clicked through on the banner advertisement, did not call the proffered toll-free number, but still purchased the product at a retail outlet.

Therefore, it would be advantageous to have a system that accurately determines Internet advertising effectiveness and which accounts for problems associated with current systems.

SUMMARY OF THE INVENTION

The present invention includes a system for determining the effectiveness of on-line advertising. The system matches information from a network access provider and a merchant to determine on-line advertising effectiveness. The network access provider provides information pertaining to the network activity of selected purchasers. The merchant provides information pertaining to purchase activity of selected purchasers. By matching the network activity and purchase information of selected purchasers it is possible to determine a measure of advertising effectiveness as defined by a ratio of actual purchases to advertisement selection. The combination of the data may be performed at a merchant system or may optionally be performed by an agent of the merchant that is given access to the merchant's purchase transaction records.

In one embodiment of the invention, a method for measuring the effectiveness of a merchant's advertisement presented on a data network is provided. The method comprises steps of identifying a consumer that accesses the data network, presenting the advertisement to the consumer via the data network, recording the consumer's network activity in an activity database, wherein the consumer's network activity in response to the advertisement is recorded in the activity database, and matching the activity database with purchase transaction records of the merchant to determine an effectiveness parameter of the advertisement.

In another embodiment of the invention, apparatus is provided for measuring advertising effectiveness of a merchant's advertisement presented on a data network. The apparatus comprises a transaction file receiver for receiving purchase transaction records that describe transactions between the merchant and a consumer, an activity file receiver for receiving an activity file describing the network activity of the consumer and a matching processor coupled to the transaction file receiver and the activity file receiver for matching transactions of the consumer with network activity of the consumer to determine an effectiveness parameter of the advertisement.

The various features, advantages and other uses of the present invention will become more apparent by referring to the following detailed description and accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows a flowchart of a process for measuring the effectiveness of on-line advertising in accordance with the present invention;

FIG. 2 shows a prior art credit card transaction system for processing a credit card transaction between a consumer and a merchant;

FIGS. 3a-e show an exemplary transaction database;

FIG. 4 shows a diagram of a data network access system that provides a way for a consumer to receive on-line advertisements from merchants or other advertisers;

FIGS. 5a-c show an exemplary advertisement/activity database;

FIG. 6 shows one embodiment of a system for measuring the effectiveness of on-line advertising in accordance with the present invention;

FIG. 7 shows a method for measuring the effectiveness of on-line advertising in accordance with the present invention;

DESCRIPTION OF THE SPECIFIC EMBODIMENTS

The present invention includes a system for determining the effectiveness of on-line advertising. The system operates by matching consumer on-line activity with merchant purchase records. A measure of advertising effectiveness results from the matching operation, since it is possible to determine if consumers make a purchase after viewing a specific on-line advertisement.

FIG. 1 show a flowchart 200 for measuring the effectiveness of on-line advertising in accordance with the present invention. At block 202, a consumer accesses a data network, for example the Internet. At block 204, the consumer provides identification to a network service provider. The identification identifies the consumer to the network service provider. At block 206, after gaining access to the data network, the consumer views an on-line advertisement. The advertisement is in the form of a banner ad that appears on the consumer's display screen. For example, a network web page is displayed on the consumer's display screen and the banner ad is superimposed over a portion of the web page.

At block 208, the consumer clicks on the advertisement to learn more about the advertised product or to make a purchase. At block 210, the network service provider records that the consumer clicked on the advertisement. For example, the date and time along with the consumer ID and an advertisement identifier are recorded by the ISP.

At block 212, the consumer visits a store in the merchant's sales channels, for example, an Internet store, catalog store, call in center or any other merchant location. At block 214, the consumer makes a purchase of the advertised goods or services and their payment record is captured at the merchant's point of sale (POS) device (i.e., cash register, credit card terminal, or catalog Internet processing center).

In one embodiment of the invention, two electronic files are generated on a periodic basis. The first file is a report generated by the network access provider that provides information about consumers that have viewed and clicked on selected network advertisements. The second file represents all payment transactions recorded at the point of sale where the consumer uses a credit card, debit card, frequent shopper card, or check (if the consumer registers a bank account number with the transaction reporting system). The two files are ultimately matched together.

At block 216, the network access provider provides a consumer ad/activity file that provides information relating to advertisements viewed and clicked on by consumers. The ad/activity file may be generated daily, weekly, monthly or at any other convenient interval.

At block 218, a merchant or an agent of the merchant generates a transaction file. The transaction file shows information about consumer transactions and purchase activity. The transaction file may be generated daily, weekly, monthly or at any other convenient interval.

At block 220, the ad/activity file and the transaction file are matched. For example, a consumer may have clicked on an advertisement and proceeded to a merchant store location and thereafter purchased goods. The merchant store may be an on-line store, catalog store, or other merchant location where the merchant offers goods or services for sale. The ad/activity file shows when the consumer clicked on the advertisement and the transaction file shows when the consumer made a particular purchase. Thus, it is possible to determine if the consumer made the purchase after viewing the on-line advertisement and approximately how much time elapsed between viewing the advertisement and making the purchase.

At block 222, an advertising effectiveness report is generated that provides information showing statistics describing the effectiveness of an on-line advertisement. For example, the number of consumers that viewed the advertisement can be compared to the number of consumers that purchased a product after viewing the advertisement.

Consumer Transactions

The retrieval of consumer purchase activity is included in one embodiment of the present invention. Therefore, a brief description of a typical credit card transaction including the transfer of the credit card information between various banking institutions will now be described. A later section of this document will describe how the consumer transaction information is used to provide a measurement of the effectiveness of on-line advertising in accordance with the present invention.

FIG. 2 shows a diagram of a typical credit card transaction between a consumer 102 and a merchant 104 and includes participating banks and the interaction of data and payment flow. The present invention is suitable for use with any type of transaction processing system that provides transaction information about consumer purchases. For example, one transaction processing system is disclosed in U.S. Patent Application No. 09/637422 entitled TRANSACTION BASED AWARD PROGRAM filed on August 11, 2000, and assigned to the assignee of the present application. Therefore, although one or more embodiments of the present invention process consumer transaction information, there is no restriction as to where or how the transaction information is derived, and so, transaction

information derived from any transaction processing system can be used. For example, transaction information may be derived from a merchant system, a banking system or a third party reporting system. A description of one transaction reporting system suitable for use with one or more embodiments of the present invention will now be described.

The merchant 104 is typically associated with a merchant bank 106, with whom the merchant 104 maintains various accounts. An acquiring bank 108 acquires and processes payment card transaction data on behalf of the merchant 104. The acquiring bank 108 sends or receives funds electronically with the merchant bank 106 as well as with card associations 118, such as Visa and MasterCard and/or companies processing private label cards. The card associations 118 interact with an issuing bank 110 that issued the credit card, debit card or the like to the consumer 102.

A POS processing institution 112 (clearinghouse) initially receives all of the electronic card transactions for merchants that are part of a particular system or who have signed onto a particular system, with the POS coordinating and controlling records of payments between consumers and the merchants. The acquiring bank 108 has available to it, as part of its accumulated data records, each electronic payment transaction, including the account of a particular consumer, the account of a particular merchant, and the amount of the transaction in the currency denomination of the merchant's choosing. The acquiring bank receives a consolidated file from the POS clearinghouse 112 on a daily basis that includes all transactions performed at POS terminals (for example POS terminal 116) located at associated merchants. Simultaneously, a transaction reporting system 114 receives a duplicate file of transaction information from the POS clearinghouse 112 and provides specialized reporting of various information to the acquiring bank and/or merchants. For example, the transaction reporting system supplies risk management reporting to help the bank and the merchant avoid fraudulent transactions. Also, the merchants receive other reports to help reconcile their daily cash receipts. In another section of this document, it will be shown how transaction information output from the transaction reporting system is usable by the advertising effectiveness measurement system included in the present invention.

During a typical credit card purchase the following transactions take place. The dollar amounts shown are for illustrative purposes only.

1. The consumer 102 makes a purchase (for example, a $100 purchase) at the merchant's 104 location by entering credit card information at the POS terminal 116.
2. A request for a $100 authorization is sent to the POS 112.
3. A request for a $100 authorization is sent from the POS 112 to the issuing bank 110.

4. An approval is provided by the issuing bank 110 to the POS 112.
5. An approval is provided by the POS 112 to the merchant 104.
6. The POS 112 transfers a $100 payment record to the acquiring bank 108.
7. The acquiring bank 108 deducts its processing fees and transfers a $97 credit to the merchant's designated account at the merchant bank 106.
8. The acquiring bank 108 advises the card association about the $100 transaction.
9. The acquiring bank receives reimbursement of $98 for the money already deposited to the merchant's bank account.
10. The card association sends an advice to the issuing bank for $100 that the consumer has incurred a debt against their credit card account (as well as $2 from the acquiring bank).
11. The issuing bank sends $100 to the card association to reimburse it for the funds transferred to the acquiring bank.
12. The issuing bank bills the consumer.
13. The consumer sends a personal check to the issuing bank 110 for $100 to cover the cost of the purchase.
14. The transaction reporting system 114 is ancillary to the above process and is subscribed to by acquiring banks for risk management reporting and/or merchant reporting services. These services are an adjunct to the acquiring bank's business management practices.

For the purposes of this invention the term "electronic card transaction" will be understood to include any transaction which generates an electronic record of the transaction, including credit cards, debit cards, check truncation transactions, electronic credit cards, transactions on the Internet, or via telephone, etc. Thus, it is possible for the transaction reporting system to compile consumer transaction records into a transaction file that can be used in one or more embodiments of the present invention.

FIGS. 3a-e show a database structure for a portion of a transaction file generated from a transaction processing system that includes information about consumer purchases made using various electronic card transactions. For example, payments made using credit cards, debit cards, and checks are some of the electronic card transactions that may be tracked and recorded in the transaction file. The transaction file contains information, such at the date and time of the transaction, identification for the merchant and the consumer, type of payment mechanism used, amount of payment, and so forth. Thus, the transaction file gives a complete accounting of electronic card transactions between consumers and

merchants regardless of whether the transaction took place via the Internet, telephone or at a physical store location.

FIG. 4 shows one embodiment of a measurement system 400 for measuring on-line advertising effectiveness in accordance with the present invention. A consumer 402 uses a network access device 404 to communicate with a network access provider 406. The network access device 404 may be any type of device capable of network access, such as a desktop computer, notebook, laptop, or other network appliance, cell phone, PDA or other personal communication device or portable computer. Connections from the consumer's network access device to the network access provider can be provided by any telecommunication technique including telephone lines, cables, fiber optics or wireless technology.

The network access provider 406 may be an Internet Service Provider (ISP) that routes information between the consumer's network access device 404 and other entities coupled to a data network 412. One of the entities coupled to the data network 412 is a merchant 408 and another entity coupled to the data network is an advertiser 410. The merchant 408 and the advertiser 410 provide advertisements for distribution on the data network.

Network portal 414 is another entity coupled to the data network 412. The network portal 414 provides several services to network users, such as providing a way for consumers to easily link to other network entities or services. Thus, it is possible for the consumer 402 to access the data network 412 via a coupling between the network access device 404 and the network access provider 406. Once the connection to the network is established, the consumer's network access device may be redirected to the address of the portal 414, and as a result, a web page provided by the portal is displayed to the consumer. This initial web page is sometimes referred to as a home page. Alternatively, the consumer may select as a home page a web page provided by some other network entity, such as the network access provider 406.

As the consumer views the home page, banner advertisements provided by the merchant 408 or the advertiser 410 are also displayed. The banner advertisements advertise goods or services offered for sale by merchants. In one embodiment, the merchant 408 forms an agreement with the network access provider 406 to superimpose the merchant's banner advertisement over the web page being viewed by the consumer. In another embodiment, the portal 414 agrees to provide a space or area on its web page that can be used by the advertiser 410 to display various advertisements. The advertiser offers this space to various merchants

so that the portal's web page has a dedicated space to display a variety of advertisements received from the advertiser 410. Thus, the display of on-line advertisements to the consumer may occur in several ways.

When the consumer sees a banner advertisement of interest, the consumer may click on the advertisement to be redirected to another web page where more information is available or where the consumer may purchase the advertised goods or services. By clicking on the banner advertisement, a web address associated with the advertisement is used to redirect the consumer's network access device to that web address. As a result, a web page from that address is displayed on the consumer's network access device 404.

When the consumer is redirected to the web address associated with the banner advertisement, the network access provider 406 tracks the redirection so that the network access provider records the activity of the consumer with respect to which advertisements the consumer clicks on, the time it was clicked on, the address the consumer was redirected to, and so forth. The network access provider creates an advertisement/activity file or database that contains information about the consumer's network activity with regards to advertisements viewed and clicked on. As a result, the network access provider 406 issues files at regular intervals that contain information from the advertisement/activity database. These ad/activity files are used in one or more embodiments of the present invention.

After clicking on an advertisement of interest, the consumer is redirected to a network address where the consumer may learn more about the advertised product or make a purchase. Assuming the consumers makes a purchase using a credit card, the electronic card transaction between the consumer and the merchant occurs as described with reference to FIG. 2 above, and as a result, the transaction becomes part of a transaction file prepared by a transaction reporting system 416 that is coupled to the data network 412. The transaction file contains information about the consumer, merchant, time and date of purchase, and the amount of the purchase.

In one embodiment, the network access provider 406 and the transaction reporting system communicate with an advertising effectiveness system 418 that is also coupled to the data network 412. For example, the network access provider 406 sends the advertisement/activity reports to the advertising effectiveness system 418 and the transaction reporting system 416 sends the transaction file to the advertising effectiveness system 416. The effectiveness system 416 receives these reports and uses the information about the consumer's network activity and purchases to determine advertising effectiveness by

matching the information and identifying parameters about the number or types of advertisements viewed by the consumer and the number and types of purchases made.

One embodiment of the invention is shown in FIG. 4, however, other embodiments of the invention are possible without deviating from the scope of the invention. For example, the provider of ad/activity file that describes the consumer's click through activity can be any network search engine, network portal, or even the merchant, since the merchant can provide activity about the consumer that occurs at the merchant site.

In one embodiment, the consumer provides a consumer network identifier that is associated with the consumer network activity in the ad/activity file. The consumer may do this to earn award points or have access to special services provided by the ISP. The consumer also provides a consumer purchase identifier that is associated with consumer transactions with a merchant. Thus, when matching the two files, the advertising effectiveness system matches the consumer network identifier with the consumer purchase identifier to determine a measure of advertising effectiveness. For example, a selected consumer's network activity can be matched with the selected consumer's purchase activity. A measure of advertising effectiveness results by determining whether the consumer clicked on a banner advertisement prior to purchasing the advertised goods or services. For example, the consumer clicks on a banner ad and is redirected to a web address associated with the banner ad. The redirection is tracked in the ad/activity file and later, the effectiveness system uses this information to determine if the consumer purchased specific goods after clicking on a particular advertisement.

In a preferred embodiment, the consumer network identifier and the consumer purchase identifier are associated with each other or the two identifiers are the same. This provides the measurement system with the most information to produce the most accurate effectiveness measurements.

In another embodiment, no consumer network identifier is provided. In this case, the system provides a lesser measure of advertising effectiveness by comparing anonymous consumers that clicked on a specific ad with the total number of purchases of the advertised product.

FIGS. 5a-c show a database structure for a portion of an advertisement/activity file that includes information about a consumer's network activity with regards to on-line advertising. The advertisement/activity file includes information relating to the time and date of advertisement display, consumer identification, type of advertisement displayed, address (Universal Resource Locator (URL)) associated with the advertisement, time and date the

consumer clicked the advertisement, and so forth. Thus, the advertisement/activity file includes all the information necessary to identify a consumer and to determine advertisements viewed by the consumer, whether the consumer clicked on the ad, and where the consumer was redirected to after clicking the ad.

FIG. 6 shows one embodiment of the advertising effectiveness system 418 constructed in accordance with the present invention. The effectiveness system 418 may be coupled to a data network, such as network 412, or may be a stand alone independent system. It is also possible that the effectiveness system 418 is located at a merchant system, advertiser system or network access system. Thus, the effectiveness system 418 is not restricted to operate at any particular location.

A transaction file receiver 604 receives (via path 602) the transaction file generated by the transaction reporting system. An ad/activity file receiver 606 receives (via path 608) the ad/activity file generated by the network access provider. A matching processor 610 performs matching functions to derive various information or statistics from the received files. For example, the number of times an advertisement has been displayed to a consumer may be determined. The number of purchases of a particular product may be determined. Any types of ratios may also be determined, for example, the ratio of the number of advertisements clicked on to the number purchases made. Thus, all types of advertising parameters and statistics can be derived by the matching processor 610. Time intervals are also considered in the matching process. For example, a merchant may want to know how many times an advertisement is clicked on over a particular time interval. The matching processor 610 can determine this.

A memory 612 provides a way to store raw data or processed results. An effectiveness report generator 614 generates files of the processed information. These files can be transmitted to merchants or advertisers via path 616. Therefore, it is possible that advertising effectiveness can be determined automatically and updated regular intervals depending on the frequency of the incoming transaction file and advertisement/activity file. The information can be used by merchants or advertisers to allocate advertising resources to advertisements that prove to be effective, or to terminate advertisements that are shown to be ineffective.

FIG. 7 shows a method 700 for measuring the effectiveness of on-line advertising in accordance with the present invention. The method 700 provide a determination of advertising effectiveness by matching consumer on-line activity with consumer purchase activity.

At block 702, a consumer accesses a data network (i.e., the Internet) via a computer terminal or other network access device. To establish the connection, the consumer communicates with a network access server, such as an Internet Service Provider (ISP).

At block 704, a test is performed by the ISP to determine if the consumer provided a valid consumer identifier (ID) when he/she logged on. The test may verify a consumer password or cookie stored on the consumer's computer terminal. If the consumer does not provide a valid ID, the method proceeds to block 706 where the consumer is assigned a status of anonymous consumer. By assigning anonymous status to the consumer, it is still possible to track advertisements viewed and clicked on by the consumer, however, it may not be possible to associate purchase transaction information with anonymous consumers, so one or more advertising effectiveness measurements may not be possible. However, tracking anonymous consumers does provide additional advertising statistics or parameters that are useful. If the consumer's ID is valid, the method proceeds to block 708.

At block 708, the ISP records the consumer's ID in a local database and then connects the consumer to the Internet to enable the consumer to view a selected home page. If the consumer has been assigned anonymous status, that will also be recorded in the local database. The selected home page may be any page associated with an Internet portal organization selected by the consumer. For example, the consumer's access point to the Internet may be through a portal operated by AOL or YAHOO!, for example, and the home page may be a page associated with the selected portal.

In block 710, the portal's web page displays an advertisement to the consumer. The advertisement may take the form of a banner advertisement, a pop-up window advertisement, or other advertisement display suitable for use with a web page. Thus, while the consumer views the web page, the consumer views the displayed advertisement. The consumer may click on the advertisement if the consumer wishes to learn more about the advertised product or service. For example, the consumer uses a pointing device, such as a mouse connected to his/her computer to point to the displayed advertisement and clicks a button on the mouse to indicated selection of the advertisement. After selecting the advertisement, a link associated with the displayed advertisement operates to direct the consumer to a web page operated by an advertiser or merchant, where the consumer learns more about the advertised product or service, or makes a purchase.

At block 712, a determination is made, via information supplied by the ISP, as to whether the user clicked through to the web site of the advertiser of the displayed advertisement. A click through means that the consumer clicked on the displayed

advertisement and was redirected, via the associated link, to the advertiser's web page. If the consumer did not click on the advertisement, the method proceeds to block 716. If the user did click on the advertisement the method proceeds to block 714.

At block 714, the ISP records the consumer's identification information, typically in the form of a "cookie", in a daily ad/activity file. Thus, it is possible for the ISP to track consumers that click on banner advertisements. In one embodiment, the primary Internet identification method is a "cookie". In another embodiment, some web sites require users to enter a password as identification, and then use this password to associate the consumer with clicked-through advertisements. In either embodiment, the method 700 operates to record the electronic identification provided by the consumer and information about the advertisement the consumer clicked on.

At block 716, the ad/activity file produced by the ISP contains the daily ad/consumer ID activity. For example, the activity report contains information about consumers, advertisements viewed by the consumers, and advertisements clicked on by the consumers. The activity report could be generated at any convenient time interval. It is also possible to include consumers having anonymous status, so that their activity is tracked as well.

At block 718, a transaction reporting system receives electronic card transactions pertaining to transactions between consumers and merchants. The transaction reporting system may be a merchant system, an independent system that acts as an agent of the merchant. At block 720, the transaction reporting system prepares a transaction file of daily purchase that includes information about purchases from the merchant made by consumers. The transaction file could be generated at any convenient time interval.

At block 722, the ad/activity file provided by the ISP and the transaction file provided by the transaction reporting system are matched. For example, consumers that purchased goods from the merchant are matched with consumers that visited the merchant site via clicking through a banner advertisement. The matching process provides a way to determine the effectiveness of the on-line advertising.

At block 724, advertising effectiveness files are produced that contain the result of the matching process. At block 726, the resulting files are organized by time intervals. The matching process occurs over any specified time period. The time period can be any length of time established by the merchant that extends from the time that a particular advertisement is displayed for the first time on a web page viewable by a consumer. The time period can be one day, several days, one week, one month, two or three months, etc.

Any matches that occur within the set time period are regarded as qualified purchases (with respect to ad effectiveness) insofar as the match indicates that a particular individual viewed an ad displayed on a web page, clicked through the ad to the advertiser's web site, and within the established time period, actually made a purchase from the advertiser by any means, including from a retail outlet of the advertiser, or by catalog, mail-order, electronic order through the Internet, etc.

At blocks 728-732, several files are generated to provide advertising effectiveness information to merchants, advertisers, or other network entities. In one embodiment, the matching process produces a variety of reports such as a report providing advertisers with the total number of matches and/or the total dollar purchase amount of such matches, so that a verification of the effectiveness of a particular ad run on the data network can be determined.

In another embodiment, the ISP or portal may also employ the number of matches as a measurement of the cost of the advertisement since advertisements having higher numbers of matches are more valuable to an advertiser and could command a higher advertising rate. The matches can also be run against other demographic information provided by the consumer to lead to more sophisticated advertising.

In another embodiment, assuming the user did not click through a banner advertisement, an optional determination can be made to determine if the user clicked directly onto an ad shown on the company's web page. For example, suppose the consumer accesses the network and goes directly to the address of the merchant's web site. Suppose further that a merchant web page is displayed to the consumer that contains merchant information and advertisements for merchant goods or services. In this optional embodiment, the system for measuring advertising effectiveness included in the present invention and can be employed to determine the effectiveness of advertisement placed directly on the merchant's web page. This occurs when the merchant provides the advertising effectiveness system information about consumer activity at the merchant web site. This information can be used in conjunction with the ad/activity file provided by the ISP.

As described above, the present method may also be employed without major modification to all accesses to an advertiser's web site, whether through a direct address access from a user or through a link from another web page. As these acts require a positive action on the part of the user, and assuming that the required "cookie" of personal information is available and able to be transferred to the ad/activity database file, all purchases by the user from the owner of the web site within the set time period can also be

tracked as described above.

The present invention includes a system for measuring the effectiveness of on-line advertising. The system provides information that can be used by a merchant to measure the effectiveness of advertising dollars, and as a result, re-deploy money spent on inefficient advertising to more efficient advertising channels. The above description is illustrative and not restrictive. Many variations of the invention will become apparent to those of skill in the art upon review of this disclosure. The scope of the invention should, therefore, be determined not with reference to the above description, but instead should be determined with reference to the appended claims along with their full scope of equivalents.

WHAT IS CLAIMED IS:

1. A method for measuring advertising effectiveness of a merchant's advertisement presented on a data network, the method comprising steps of:

identifying a consumer that accesses the data network;

presenting the advertisement to the consumer via the data network;

recording the consumer's network activity in an activity database, wherein the consumer's network activity in response to the advertisement is recorded in the activity database; and

matching the activity database with purchase transaction records of the merchant to determine an effectiveness parameter of the advertisement.

2. The method of claim 1, wherein the step of recording is a step of recording in the activity database whether or not the consumer clicked on the advertisement and was redirected on the data network to another address associated with the advertisement.

3. The method of claim 1, further comprising a step of maintain purchase transaction records between the merchant and the consumer.

4. The method of claim 1, wherein the step of matching is a step of matching the activity database with the purchase transaction records to determine an effectiveness parameter of the advertisement, wherein the effectiveness parameter indicates whether the consumer purchased goods from the merchant any time after selecting the advertisement.

5. The method of claim 1, wherein the step of matching is a step of matching the activity database with the purchase transaction records to determine an effectiveness parameter of the advertisement, wherein the effectiveness parameter indicates whether the consumer purchased goods from the merchant through any available merchant sales channel any time after selecting the advertisement.

6. The method of claim 1, wherein the step of matching comprises steps of:

associating a consumer network identifier with the consumer's network activity recorded in the activity database and a consumer purchase identifier with the purchase transaction records; and

matching network activity in the activity database associated with the consumer network identifier with the purchase transaction records associated with the consumer's purchase identifier to determine the effectiveness parameter of the advertisement.

7. Apparatus for measuring advertising effectiveness of a merchant's advertisement presented on a data network, the apparatus comprising:

means for identifying a consumer that accesses the data network;

means for presenting the advertisement to the consumer via the data network;

means for recording the consumer's network activity in an activity database, wherein the consumer's network activity in response to the advertisement is recorded in the activity database; and

means for matching the activity database with the purchase transaction records to determine an effectiveness parameter of the advertisement.

8. The apparatus of claim 7, further comprising::

means for associating a consumer network identifier with the consumer's network activity recorded in the activity database and a consumer purchase identifier with the purchase transaction records; and

means for matching network activity in the activity database associated with the consumer network identifier with the purchase transaction records associated with the consumer's purchase identifier to determine the effectiveness parameter of the advertisement.

9. The apparatus of claim 7, wherein the means for recording is a means for recording in the activity database whether or not the consumer clicked on the advertisement and was redirected on the data network to another address associated with the advertisement.

10. Apparatus for measuring advertising effectiveness of a merchant's advertisement presented on a data network, the apparatus comprising:

a transaction file receiver for receiving purchase transaction records that describe transactions between the merchant and a consumer;

an activity file receiver for receiving an activity file describing the network activity of the consumer;

a matching processor coupled to the transaction file receiver and the activity file receiver for matching transactions of the consumer with network activity of the consumer to determine an effectiveness parameter of the advertisement.

11. The apparatus of claim 10, wherein the purchase transaction records include a consumer transaction identifier that may be associated with a consumer activity identifier included in the activity file.

12. The apparatus of claim 11, wherein the consumer transaction identifier is identical to the consumer activity identifier.

13. The apparatus of claim 10, further comprising an effectiveness report generator to generate report regarding the effectiveness parameter of the advertisement.

14. The apparatus of claim 10, wherein the effectiveness parameter describes whether the consumer visited a selected network address prior to entering into a selected transaction.

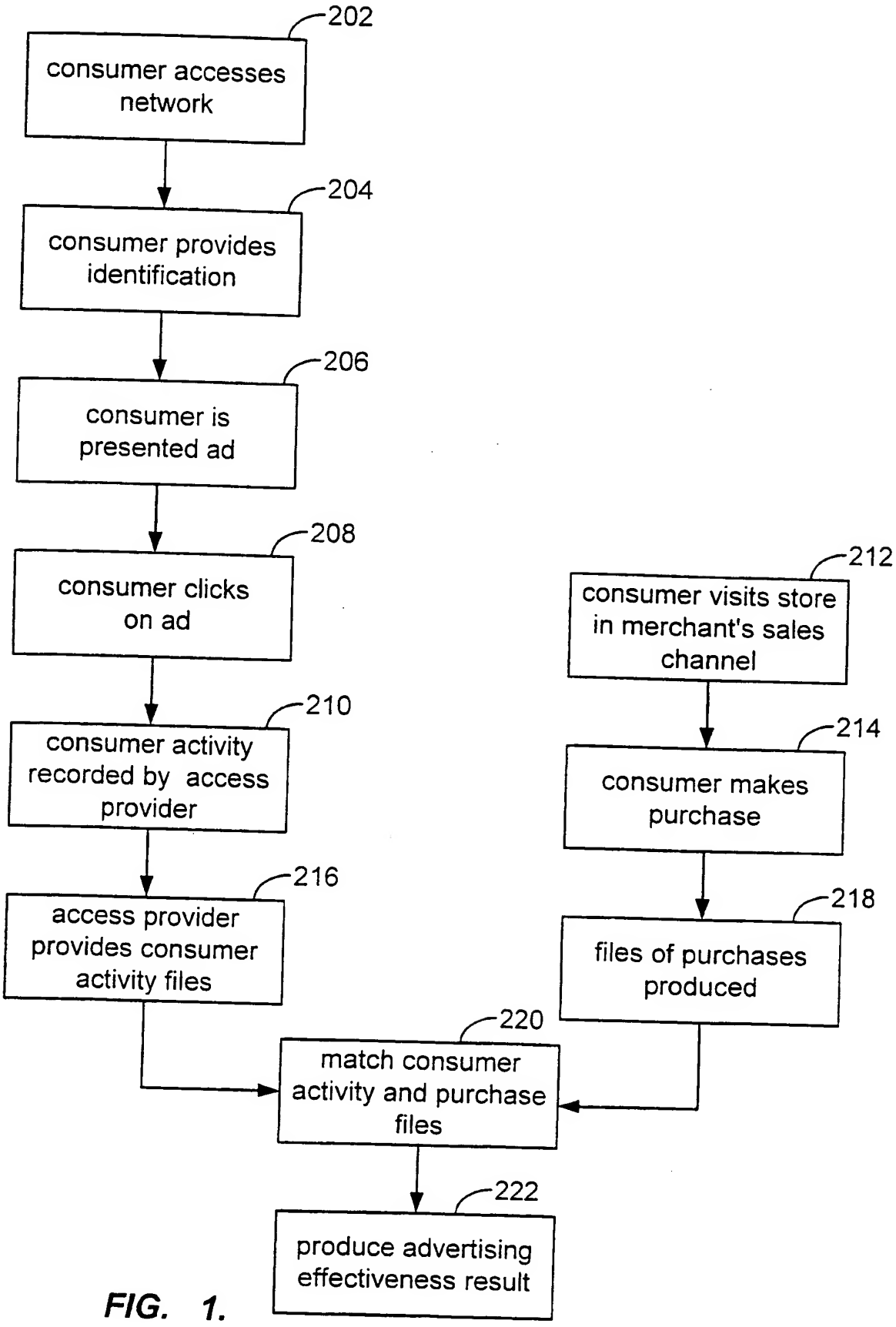
202
consumer accesses network
204
consumer provides identification
206
consumer is presented ad
208
consumer clicks on ad
210
consumer activity recorded by access provider
216
access provider provides consumer activity files
212
consumer visits store in merchant's sales channel
214
consumer makes purchase
218
files of purchases produced
220
match consumer activity and purchase files
222
produce advertising effectiveness result

FIG. 1.

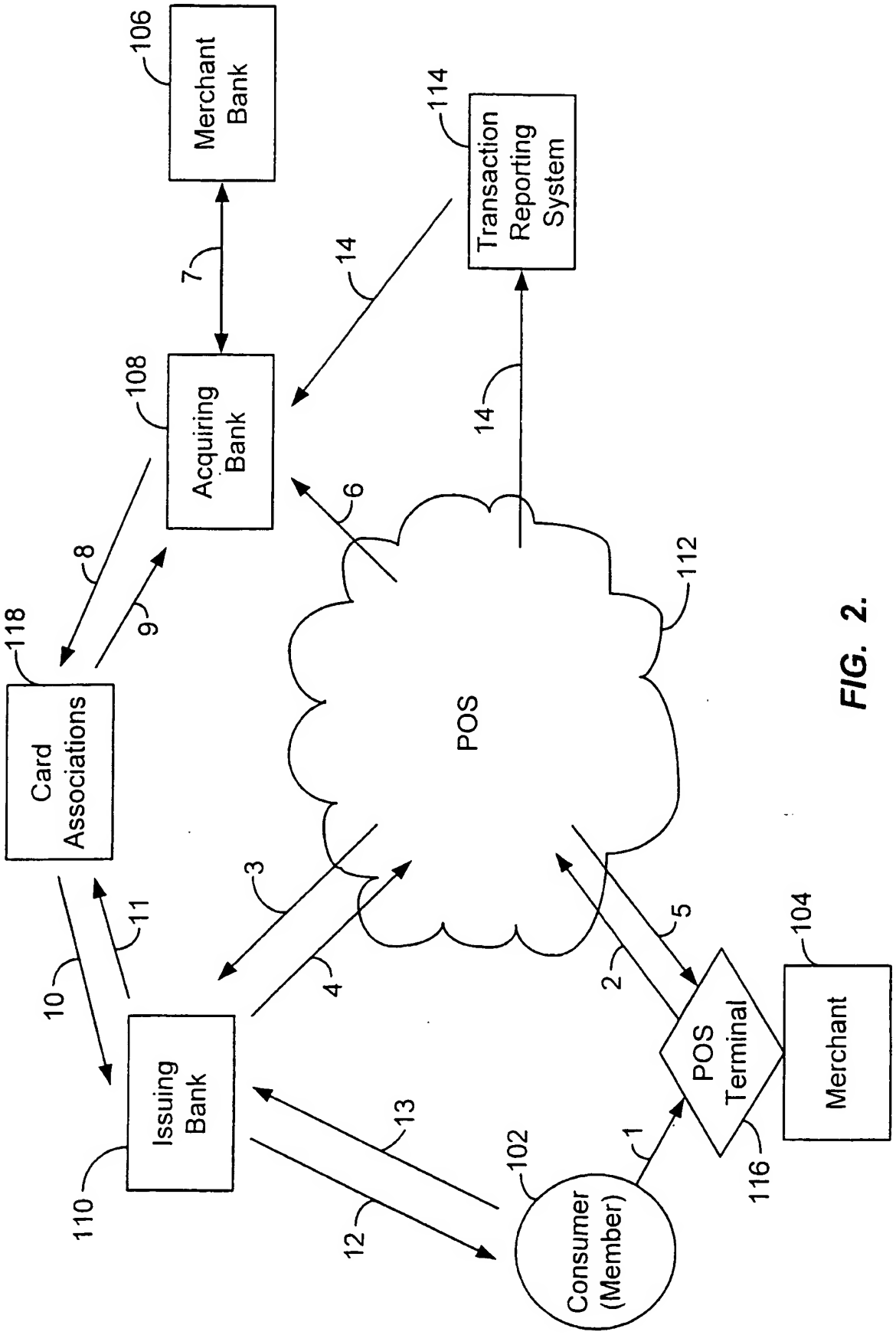
Merchant Bank
106
Transaction Reporting System
114
7
14
Acquiring Bank
108
14
6
8
9
POS
112
Card Associations
118
3
4
5
2
11
10
Issuing Bank
110
POS Terminal
116
Merchant
104
13
12
1
102
Consumer (Member)

FIG. 2.

Daily Header Record	
Record Length:	150
Description:	One header record proceeds the Detail Records. The Header Record contains information specific to the creation of the file.
Fields in this section:	1. RECORD TYPE 2. DATE 3. TIME 4. DESCRIPTION 5. SERIAL NUMBER 6. TOTAL RECORDS 7. FILLER
FIELD 1	RECORD TYPE
Field Length:	3 Bytes
Field Type:	Alphanumeric
Field Position:	1-3
Constants:	'HDR'
Description:	The constant 'HDR' signifies that this is a Header Record.
FIELD 2	DATE
Field Length:	8 Bytes
Field Type:	Alphanumeric
Field Position:	4-11
Constants:	None
Description:	This field contains the File Creation Date. The format is: YYYYMMDD YYYY = Year (4-digits) MM = Month (2-digits) DD = Day (2-digits)
FIELD 3	TIME
Field Length:	4 Bytes
Field Type:	Alphanumeric
Field Position:	12-15
Constants:	None
Description:	This field contains the File Creation Time: The format is: HHMM HH = Hour (2-digits) MM = Minutes (2-digits)
FIELD 4	DESCRIPTION
Field Length:	20 Bytes
Field Type:	Alphanumeric

FIG. 3A.

Field Position:	16-35
Constants:	"'COMPANY" DAILY TRANS'
Description:	This field contains the 'descriptive name' of the file.
FIELD 5	SERIAL NUMBER
Field Length:	20 Bytes
Field Type:	Alphanumeric
Field Position:	36-56
Constants:	Character Spaces
Description:	Number that increments with each file generated.
FIELD 6	TOTAL RECORDS
Field Length:	7 Bytes
Field Type:	Numeric
Field Position:	56-64
Constants:	Character Spaces
Description:	Count of total records in file.
FIELD 7	FILLER
Field Length:	86 Bytes
Field Type:	Alphanumeric
Field Position:	64-150
Constants:	Charcter Spaces
Description:	
Daily Header Record	
Record Length:	150
Description:	One detail record is generated for each transaction that was processed.
Fields in this section:	1. RECORD TYPE 2. MERCHANT IDENTIFICATION NUMBER 3. CARDMEMBER ACCOUNT NUMBER 4. DATE OF CHARGE 5. CHARGE AMOUNT 6. CURRENCY CODE - (i.e. dollars; marks; francs.) 7. MCC CODE - type of Business Code 8. DBA NAME 9. CARD TYPE 10. MEMBERSHIP NUMBER 11. FILLER
FIELD 1	RECORD TYPE
Field Length:	3 Bytes
Field Type:	Alphanumeric
Field Position:	1-3
Constants:	'DTL'
Description:	The constant 'DTL' signifies that this is a Detail Record.
FIELD 2	MID
Field Length:	10 Bytes
Field Type:	Alphanumeric
Field Position:	4-13

FIG. 3B.

Constants:	None
Description:	This field contains the Merchant Identification Number
FIELD 3	CARDMEMBER PAYMENT CARD ACCOUNT NUMBER
Field Length:	19 Bytes
Field Type:	Numeric
Field Position:	18-32
Constants:	None
Description:	This field contains the Cardmember's account number
FIELD 4	DATE OF PURCHASE
Field Length:	8 Bytes
Field Type:	Alphanumeric
Field Position:	33-40
Constants:	None
Description:	This field contains the date that the purchase took place. YYYYMMDD YYYY = Year (4-digits) MM = Month (2-digits) DD = Day (2-digits)
FIELD 5	CHARGE AMOUNT
Field Length:	15 Bytes
Field Type:	Numeric, 3 decimal places, signed positive or negative, right justified, with leading zeros
Field Position:	41-55
Constants:	None
Description:	This field contains the total amount of the transaction (including tax and tips) A debit amount (positive) is indicated by an alpha code used in place of the last digit. See debit codes and their numeric equivalents, below: 1=A 2=B 3=C 4=D 5=E 6=F 7=G 8=H 9=1 0={ Similarly, a credit amount (negative) is indicated by an alpha code used in place of the last digit. See credit codes and equivalents, below: 1=J 2=K 3=L 4=M 5=N 6=O 7=P 8=Q 9=R 0=}
FIELD 6	CURRENCY CODE
Field Length:	3 Bytes
Field Type:	Alphanumeric
Field Position:	56-58
Constants:	None
Description:	This field contains the currency identifier.
FIELD 7	MCC Code

FIG. 3C.

Field Length:	4 Bytes
Field Type:	Numeric
Field Position:	58-61
Constants:	None
Description:	This is the merchant business type description code provided by the bank and used by the card association
FIELD 8	DBA Name
Field Length:	50 Bytes
Field Type:	Alphanumeric
Field Position:	61-111
Constants:	None
Description:	Merchant location name.
FIELD 9	CARD TYPE
Field Length:	5 Bytes
Field Type:	Alphanumeric
Field Position:	111-116
Constants:	
Description:	Type of payment card used.
FIELD 10	MEMBERSHIP NUMBER
Field Length:	20 Bytes
Field Type:	Numeric
Field Position:	116-136
Constants:	
Description:	Special membership card number such as frequent shopper number
FIELD 11	FILLER
Field Length:	14 Bytes
Field Type:	Alphanumeric
Field Position:	136-150
Constants:	Character Spaces
Description:	
Daily Trailer Record	
Record Length:	150
Description:	One trailer record follows the Detail Records.
Fields in this section:	1. RECORD TYPE 2. DATE 3. TIME 4. RECORD COUNT 5. NET DOLLAR AMOUNT 6. FILLER
FIELD 1	RECORD TYPE
Field Length:	3 Bytes
Field Type:	Alphanumeric
Field Position:	1-3
Constants:	'TRL'
Description:	The constant 'TRL' signifies that this is a Trailer Record.

FIG. 3D.

FIELD 2	DATE
Field Length:	8 Bytes
Field Type:	Alphanumeric
Field Position:	4-11
Constants:	None
Description:	This field contains the date that the purchase took place. YYYYMMDD YYYY = Year (4-digits) MM = Month (2-digits) DD = Day (2-digits)
FIELD 3	TIME
Field Length:	4 Bytes
Field Type:	Alphanumeric
Field Position:	12-15
Constants:	None
Description:	This field contains the File Creation Time: The format is: HHMM HH = Hour (2-digits) MM = Minutes (2-digits)
FIELD 4	RECORD COUNT
Field Length:	7 Bytes
Field Type:	Alphanumeric
Field Position:	16-22
Constants:	None
Description:	This field contains a count of the total quantity of Detail Records in the file.
FIELD 5	NET DOLLAR AMOUNT
Field Length:	15 Bytes
Field Type:	Numeric, 3 decimal places, signed positive or negative, right justified, with leading zeros
Field Position:	23-37
Constants:	None
Description:	This field contains the total net value of all Detail Records. A debit amount (positive) is indicated by an alpha code used in place of the last digit. See debit codes and their numeric equivalents, below: 1=A 2=B 3=C 4=D 5=E 6=F 7=G 8=H 9=1 0={ Similarly, a credit amount (negative) is indicated by an alpha code used in place of the last digit. See credit codes and equivalents, below: 1=J 2=K 3=L 4=M 5=N 6=O 7=P 8=Q 9=R 0=}
FIELD 6	FILLER

FIG. 3E.

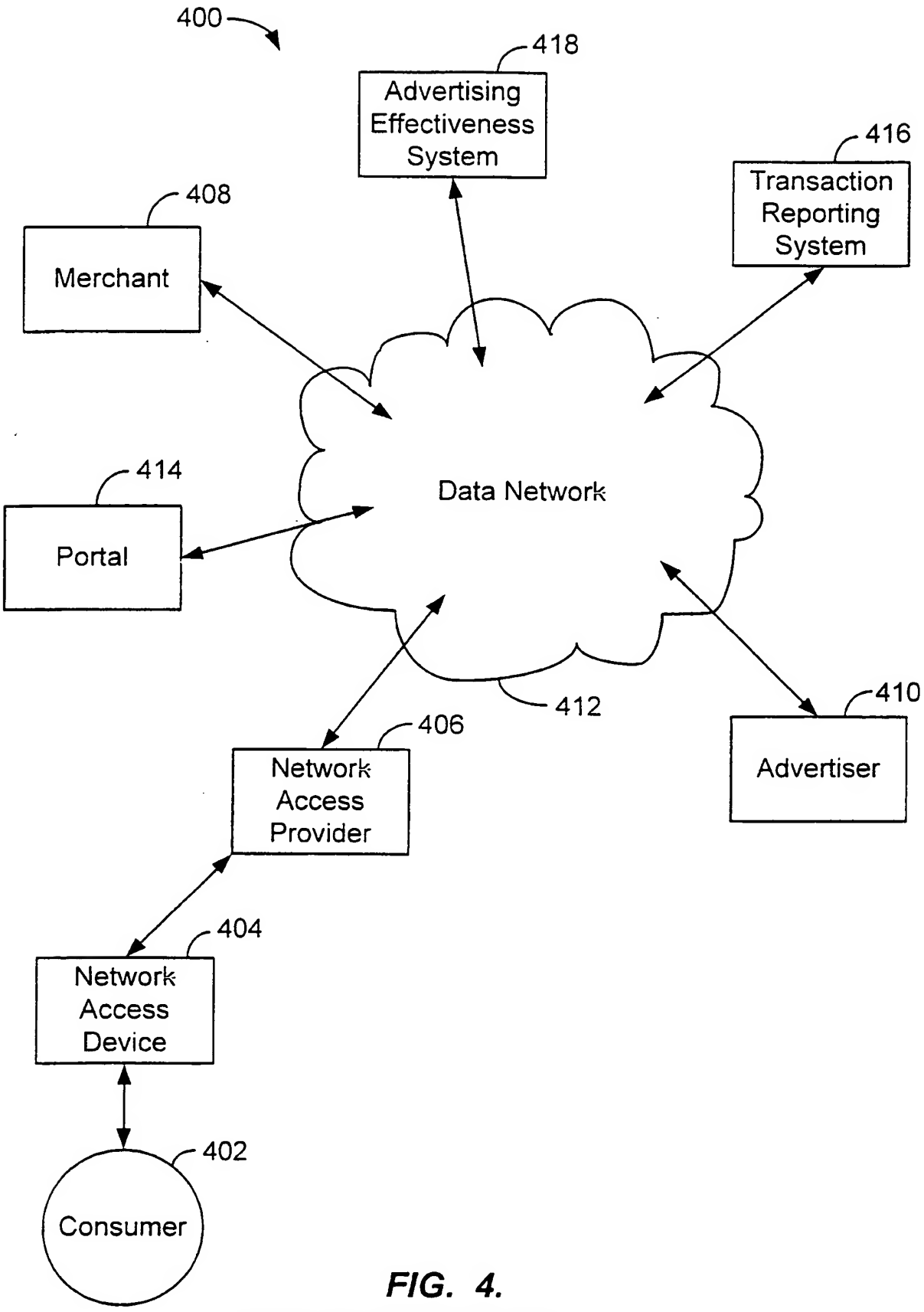
400
418
Advertising Effectiveness System
416
Transaction Reporting System
408
Merchant
Data Network
414
Portal
412
410
Advertiser
406
Network Access Provider
404
Network Access Device
402
Consumer

FIG. 4.

Daily Header Record	
Record Length:	150
Description:	One header record proceeds the Detail Records. The Header Record contains information specific to the creation of the file.
Fields in this section:	1. RECORD TYPE 2. DATE 3. TIME 4. DESCRIPTION 5. SERIAL NUMBER 6. TOTAL RECORDS 7. FILLER
FIELD 1	RECORD TYPE
Field Length:	3 Bytes
Field Type:	Alphanumeric
Field Position:	1-3
Constants:	'HDR'
Description:	The constant 'HDR' signifies that this is a Header Record.
FIELD 2	DATE
Field Length:	8 Bytes
Field Type:	Alphanumeric
Field Position:	4-11
Constants:	None
Description:	This field contains the File Creation Date. The format is: YYYYMMDD YYYY = Year (4-digits) MM = Month (2-digits) DD = Day (2-digits)
FIELD 3	TIME
Field Length:	4 Bytes
Field Type:	Alphanumeric
Field Position:	12-15
Constants:	None
Description:	This field contains the File Creation Time: The format is: HHMM HH = Hour (2-digits) MM = Minutes (2-digits)
FIELD 4	DESCRIPTION
Field Length:	20 Bytes
Field Type:	Alphanumeric

FIG. 5A.

Field Position:	16-35
Constants:	"'COMPANY" DAILY TRANS'
Description:	This field contains the 'descriptive name' of the file.
FIELD 5	SERIAL NUMBER
Field Length:	20 Bytes
Field Type:	Alphanumeric
Field Position:	36-56
Constants:	Character Spaces
Description:	Number that increments with each file generated.
FIELD 6	TOTAL RECORDS
Field Length:	7 Bytes
Field Type:	Numeric
Field Position:	56-64
Constants:	Character Spaces
Description:	Count of total records in file.
FIELD 7	FILLER
Field Length:	86 Bytes
Field Type:	Alphanumeric
Field Position:	64-150
Constants:	Charcter Spaces
Description:	
Daily Header Record	
Record Length:	300
Description:	One detail record is generated for each transaction that was processed.
Fields in this section:	1. Record Type Viewing Session Consumer Identification URL Arrived From Banner/Advertiseds Clicked On Date Click On TIME CLICK ON Next URL Destination
FIELD 1	RECORD TYPE
Field Length:	3 Bytes
Field Type:	Alphanumeric
Field Position:	1-3
Constants:	'DTL'
Description:	The constant 'DTL' signifies that this is a Detail Record.
FIELD 2	VIEWING SESSION
Field Length:	50 Bytes
Field Type:	Alphanumeric
Field Position:	4-53
Constants:	None
Description:	This field contains the 'descriptive name' of the viewing session from provider.

FIG. 5B.

FIELD 3	CONSUMER IDENTIFICATION
Field Length:	30 Bytes
Field Type:	Alphanumeric
Field Position:	54-83
Constants:	None
Description:	Consumer identificaiton with session provider
FIELD 4	URL ARRIVED FROM
Field Length:	50 Bytes
Field Type:	Alphanumeric
Field Position:	84-133
Constants:	None
Description:	URL consumer arrived from
FIELD 5	BANNER/ADVERTISEMENT CLICKED ON
Field Length:	50 Bytes
Field Type:	Alphanumeric
Field Position:	134-183
Constants:	None
Description:	Identifier of advertisement consumer clicked on.
FIELD 6	DATE CLICK ON
Field Length:	8 Bytes
Field Type:	Alphanumeric
Field Position:	184-191
Constants:	None
Description:	This field contains the File Creation Date. The format is: YYYYMMDD YYYY = Year (4-digits) MM = Month (2-digits) DD = Day (2-digits)
FIELD 7	TIME CLICK ON
Field Length:	
Field Type:	
Field Position:	
Constants:	
Description:	
FIELD 8	NEXT URL DESTINATION
Field Length:	
Field Type:	
Field Position:	
Constants:	
Description:	

FIG. 5C.

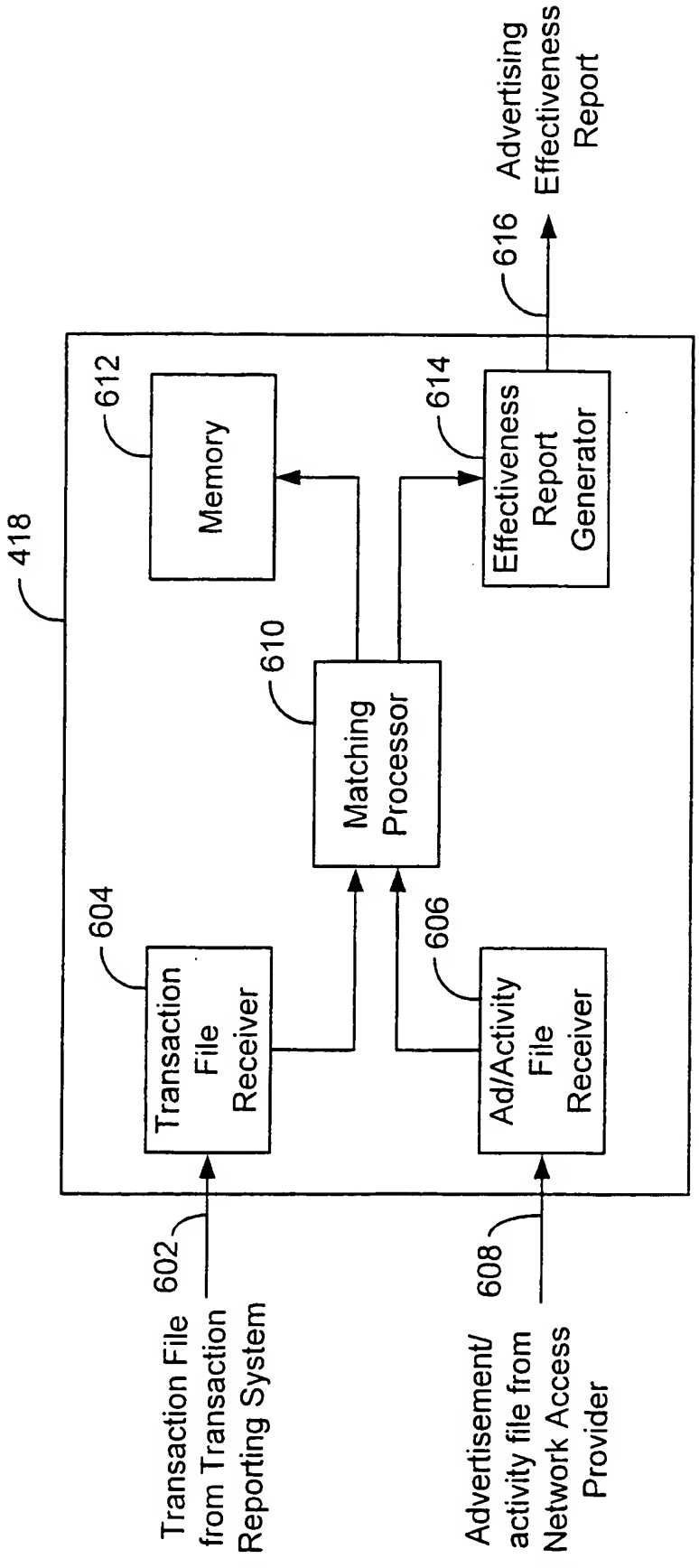
Advertising Effectiveness Report
616
418
612
Memory
614
Effectiveness Report Generator
610
Matching Processor
604
Transaction File Receiver
606
Ad/Activity File Receiver
602
608
Transaction File from Transaction Reporting System
Advertisement/ activity file from Network Access Provider

FIG. 6.

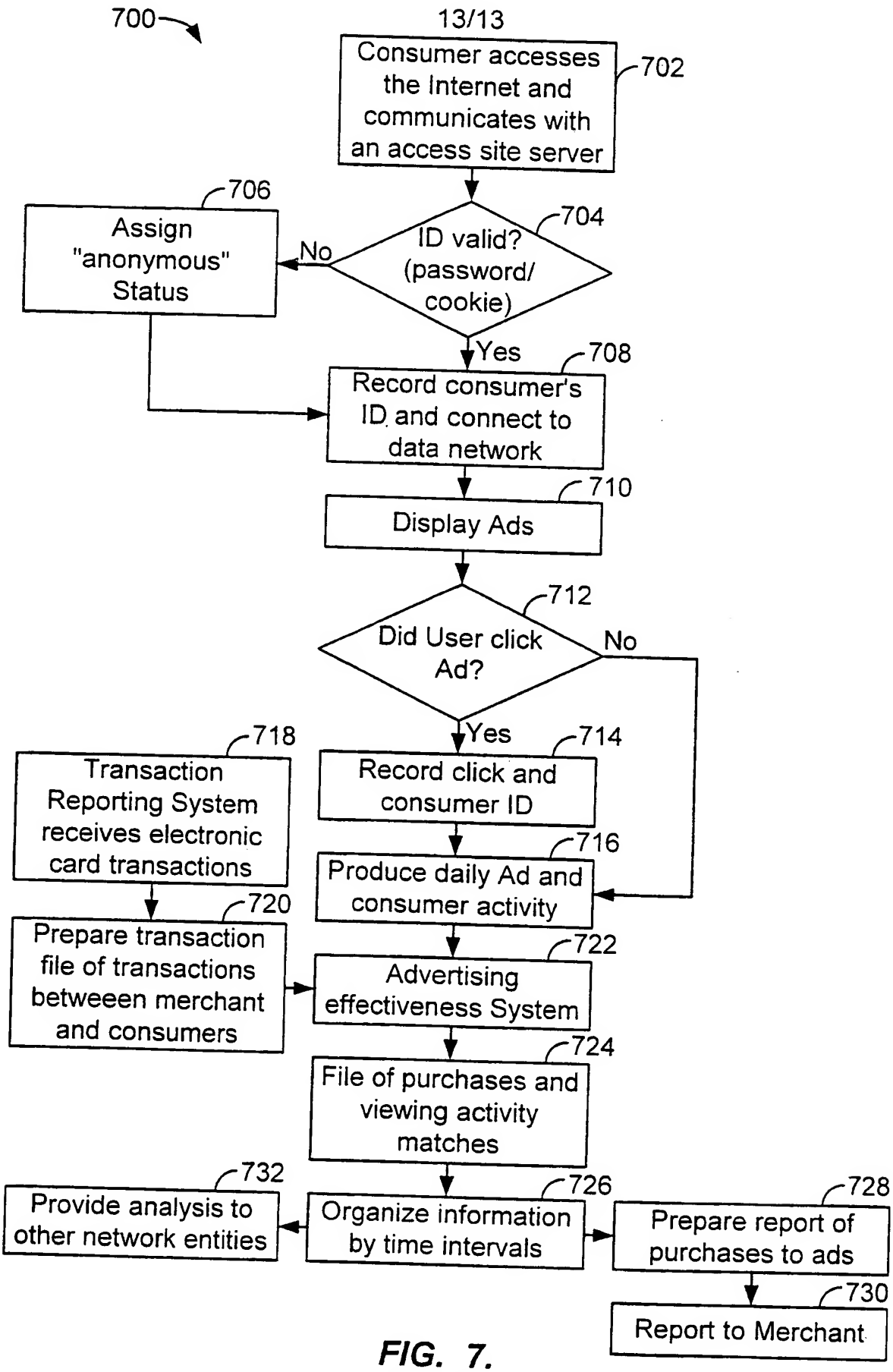
700
Consumer accesses the Internet and communicates with an access site server
702
ID valid? (password/ cookie)
704
No
Assign "anonymous" Status
706
Yes
Record consumer's ID and connect to data network
708
Display Ads
710
Did User click Ad?
712
No
Yes
Record click and consumer ID
714
Produce daily Ad and consumer activity
716
Advertising effectiveness System
722
File of purchases and viewing activity matches
724
Organize information by time intervals
726
Prepare report of purchases to ads
728
Report to Merchant
730
Transaction Reporting System receives electronic card transactions
718
Prepare transaction file of transactions betweeen merchant and consumers
720
Provide analysis to other network entities
732

FIG. 7.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/31893

A. CLASSIFICATION OF SUBJECT MATTER
IPC(7) :GO6 F 17/60
US CL :705/14
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 705/14

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

STN

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y,P	US 6,081,788 A (APPLEMAN et al) 27 June 2000, figure 1, column 17, lines 34-47	1-14
Y	US 5,687,322 A (DEATON et al) 11 November 1997, column 163, lines 21-37	1-14

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search 24 JANUARY 2001	Date of mailing of the international search report 04 APR 2001
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer Peggy Harrod JAMES TRAMMEL Telephone No. (703) 305-9768

Form PCT/ISA/210 (second sheet) (July 1998)★

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